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Analyzing Trends in Federal Government Surpluses and Deficits

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NAVAL POSTGRADUATE SCHOOL

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MBA PROFESSIONAL REPORT

Analyzing Trends in Federal Government Surpluses and Deficits

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June 2012

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13. ABSTRACT (maximum 200 words)

This project consists of an analysis of the federal budget through the years 1990–2020. The key issues to be addressed are (a) average percentage of deficit as a percentage Gross Domestic Product (GDP), (b) interest rate(s) on debt depending on forms of debt, (c) annual interest cost, (d) debt structure, (e) government outlay percentages relating to GDP, and government receipt percentages related to GDP. The objectives are to identify apparent trends in the U.S. federal government's deficits and implications of annual and total debt.

These data are necessary for the analysis of the federal deficit. The federal budget is a complex formulation of many different inputs used to comprise economic standing. The purpose of this analysis is to identify past, present, and future implications of the federal deficit, e.g., net interest cost. The deficit and interest costs are positively correlated. When the deficit rises, so does the amount of interest paid. This is true assuming interest rates remain constant. Lately, as interest rates have fallen, the debt burden is lighter even though the overall debt is larger. Furthermore, higher interest payments lead to less capital devoted towards programs and the overall budget balance. Conversely, a lower deficit leads to lower interest payments. Therefore, capital can be reallocated to other avenues, such as social programs, infrastructure, and education.

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ANALYZING TRENDS IN FEDERAL GOVERNMENT SURPLUSES AND DEFICITS

Louis Jackson, Lieutenant, United States Navy

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

NAVAL POSTGRADUATE SCHOOL
June 2012

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LIST OF ACRONYMS AND ABBREVIATIONS

CBO	Congressional Budgeting Office
CRS	Congressional Research Service Reports
FY	Fiscal Year
GAO	Government Accountability Office
GDP	Gross Domestic Product
GSE	Government-Sponsored Enterprises
OMB	Office of Management and Budget
TARP	Troubled Asset Relief Program
U.S.	United States

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I. INTRODUCTION

The federal budget deficit has been an ongoing concern for several years. Many critics and members of the public have questioned the sustainability of federal spending given the size and growth of the deficit. The tasks of this project are the analysis of trends in the federal deficit and cost of debt services (i.e., interest payments). Since the year 2002, the federal deficit has been increasing at an alarming rate. This stems from many reasons, such as reduction in tax receipts, increased outlays, world conflict, and the national recession. It is very important for the American public to understand the future implications of a soaring federal budget deficit. One measure used to estimate or determine the impact of the deficit is the percentage it represents relative to the Gross Domestic Product (GDP). The GDP is the measure of a country's economic output. GDP can be determined in three ways, all of which should, in principle, give the same result. They are the product (or output) approach, the income approach, and the expenditure approach. In this analysis, the expenditure approach will be utilized. Components of GDP by expenditure GDP (Y) is a sum of Consumption (C), Investment (I), Government Spending (G) and Net Exports (X – M). Hence the expenditure approach formula, $Y = C + I + G + (X - M)$ ("Gross Domestic Product," n.d.).

We have determined in this analysis the expenditure approach is the method of choice. Therefore, we are compelled to define and differentiate between terms that have a substantial impact on the understanding of this analysis. Those terms are but not limited to debt, deficit, interest, and Treasury Department. There is a clear distinction between debt and deficit. Suppose you spend more money this month than your income. This situation is called a "budget deficit." So you borrow (i.e., use your credit card). The amount you borrowed (and now owe) is called your debt. You have to pay interest on your debt. If next month you spend more than your income, another deficit, you must borrow some more, and you will still have to pay the interest on your debt (now larger). If you have a deficit every month, you keep borrowing and your debt grows. Soon the interest payment on your loan is bigger than any other item in your budget. Eventually,

all you can do is pay the interest payment, and you do not have any money left over for anything else. This situation is known as bankruptcy ("Federal Budget spending," n.d.). It is imperative to understand how interest works. A thorough understanding of interest will truly enlighten one's perspective on how it affects the federal deficit. Therefore, in the following paragraph is a summary of how interest facilitates itself into economic decision

The interest on borrowed money is the price of credit and, as in any competitive market, prices are determined by supply and demand (Rosen, 1994). Simple interest is interest paid on the principal, or a sum of money you owe or have invested. If you receive 5% simple interest on this money every year, then you will have your original principal plus 5% of its value at the end of each year. For a practical example, if you have $1000 in a savings account and you neither add to nor take away from it, by the end of the year you will have an extra $50, for a total of $1050. You may receive interest parceled out over the year, too; if you receive 5% annual interest figured into your account every month, then you will get about $4.50 a month. When your interest is paid to you, you can decide whether or not to add it to your capital (Gillian, n.d.).

Compound interest is added to the principal automatically when paid, and interest after this is figured on the whole sum—principal plus interest. On that $1000 capital above, if you get interest that is compounded annually, at the end of the first year you will have $1050, but at the end of the second year you will have $1152.50 (Gillian, n.d.)

If your interest is compounded monthly, at the end of the first year you will have $1052—slightly more than with simple interest. The difference is, starting with the first interest payment, you receive interest paid on interest. For example, if the Manhattan Indian tribe had invested the $24 they received for their island in a bank that paid 6.5% interest compounded annually, today they would have over $820 BILLION in the bank, more than the value of the island they sold (Gillian, n.d.).

The most telling difference between simple interest and compound interest is how long it takes to double your money. With simple interest, at 5% annual interest, it takes 20 years. With compound interest, however, it takes only 13 years. And that is assuming

you do not add any cash to the account, and that you only have a 5% return (Gillian, n.d.). In this analysis, we will deal with simple interest. However, it is beneficial to understand both types and how the Treasury Department uses it to determine economic decisions

The Treasury Department is the executive agency responsible for promoting economic prosperity and ensuring the financial security of the United States. The Department is responsible for a wide range of activities such as advising the president on economic and financial issues, encouraging sustainable economic growth, and fostering improved governance in financial institutions. The Department of the Treasury operates and maintains systems that are critical to the nation's financial infrastructure, such as the production of coin and currency, the disbursement of payments to the American public, revenue collection, and the borrowing of funds necessary to run the federal government ("Duties and Functions," n.d.).

The Treasury Department works with other federal agencies, foreign governments, and international financial institutions to encourage global economic growth, raise standards of living, and to the extent possible, predict and prevent economic and financial crises. The Treasury Department also performs a critical and far-reaching role in enhancing national security by implementing economic sanctions against foreign threats to the U.S., identifying and targeting the financial support networks of national security threats, and improving the safeguards of our financial systems ("Duties and Functions," n.d.).

As previously stated, the Treasury Department is directly responsible for the borrowing of funds necessary to operate the federal government. Therefore, an increasing deficit requires borrowing more to support economic conditions. This in-turn leads to more interest paid by the federal government to the American public and foreign investors. A major concern exists within the U.S government, that eventually the interest payments can exceed payments towards the principal. However, it is also critical to identify what causes spikes in federal spending by attempting to capture trends within the budget.

The types of methods used in the analysis are qualitative, as well as quantitative. It is important to review past presidential budget proposals, as well as other historical data that may be presented in qualitative or quantitative form. Such data sources are but not limited to the Office of Management and Budget (OMB), Congressional Research Service Reports (CRS), and the Government Accountability Office (GAO).

Some topics are omitted from the scope of the project, including the effects of supplemental spending and the cost of foreign held debt. Although both are helpful in analyzing trends of the deficit, instead, the focus is on the overall interest payments caused by the debt.

II. BACKGROUND AND DATA

The United States (U.S.) has had public debt since its establishment. The events of the American Revolutionary war led to the initial yearly reported sum of $75,463,476.52 in 1791. The first major debt increase was a result of the Civil War. In 1860, debt was approximately 65 million leading into the war. The war debt had increased to an astonishing number just over $1 billion ("Public Debt in America," n.d.) In 1917, Congress felt the need to place a threshold on government debt. As a result, the Second Liberty Bond Act of 1917 was created. This act established a legislative limit on federal debt. Within the U.S. federal government, there are two types of debt. There is public debt, which is the summation of all securities issued by the United States Treasury, and there is gross debt, which is the sum of all securities by the treasury and intra-government obligations. U.S. federal debt may be viewed as a percentage of its GDP. Also, tax receipts and outlays impact the gross debt. Tax receipts are revenues collected from taxpayers and outlays are obligations the government has liquidated.

The FY 2010 total federal debt is approximately 12.9 trillion U.S. dollars. The interest expense from 1 October 2010 through March 2010 totals 201,928,781,952.77 U.S. dollars ("Treasury Direct," 2010). Net interest is defined as interest on treasury debt securities (gross), minus the interest received by on-budget and off-budget trust funds, and adjusted for the receipts and outlays recorded as other interest ("Budget of the U.S Government," n.d.). On-budget refers to those programs not legally designated as off-budget. Off-budget by law are certain programs, such as Social Security and the Postal Services, accounted for separately from all other programs in government and are accorded separate treatment (budget concepts). The amount of net interest depends on the amount of debt held by the public, as well as on the interest rates on the treasury securities that comprise the debt (net interest). The existing interest expense is an alarming figure that has no effect on the overall debt principal.

The citizens of the United States should be concerned about the federal deficit and its ramifications on American households. Who should be involved in providing

solutions? The first answer is the president and Congress. The American public and the media have an important role in rectifying this problem. The media has the influence to continue focusing on concerns of the deficit. The media has been referred to as the fourth branch over time because of its massive influence on political outcomes. Next, the American people must listen to the information and interpret it to determine an adequate style of living, which must contain some sort of strategy that holds living costs to those within ones' means. It is also cause for Americans to start saving again. In 2005, the savings rate had fallen to less than 3 % of disposable income in recent years (Ferguson, 2005). The American people can further take action by truly being cautious on whom they elect into office. Eventually, the American people may be faced with more job loss, higher taxes, and less job security if corrections are not sought. Politicians that currently hold office have a tremendous responsibility to do what is right for the greater good of the country, who must seek less of their personal agenda and more of the agenda of the masses. However, the American public cannot rely on them solely, because personal agendas reflect re-election and re-elections reflect greater or continued power. Much speculation abounds as to what may have led to such a lofty federal deficit. According to Vice Chairman Roger W. Ferguson Jr. of the Federal Reserve Board (2005), three perspectives characterize the current account balance. The first is the perspective that the account balance is the difference between the nation's exports and its imports. From this perspective, the reasons for the account balance are the same as the trade balance: exchange rates, prices, and incomes at home and abroad. With that said, the increase in the U.S. deficit is attributed to the strengthening of the dollar since the mid-1990s, which led U.S. imports to be cheaper measured in dollars and U.S. exports to be more expensive in foreign currency. Next, the current account balance is understood as the difference between the nation's savings and investments. This approach emphasizes the decline in the ratio of national savings to GDP within the past ten years. Last, since foreign investors are the backing of spending done over the income amount, the account balance is equivalent to the net inflows from abroad (Ferguson, 2005). This approach blames the increased economic inflows as the reason for the deficit. Another approach, however, has been widely overlooked. There has been a decline in foreign domestic demand. The

development of other countries has left the international economy less dependent on U.S. exports. Also, the increase in foreign savings conversely reduces their spending; therefore, having more readily available resources for the United States to borrow, which in turn, increases U.S. debt. In past years, 1985 to be exact, U.S. foreign assets were equal to its foreign liabilities. The latter led to an international standing of investment of approximately zero. The U.S. investment standing by 1995 had shifted from approximately 0% to -4% of the GDP (Ferguson, 2005).

It is increasingly obvious that this type of growth is unsustainable. According to the Congressional Budgeting Office (CBO), in fiscal year 2010, the GDP is down 6.5 % from the estimated amount if all labor and capital were in use; otherwise known as the output gap ("Budget&Econ2010/20," 2010). Looking ahead to future years, the projected deficits average about $600 billion per year through 2011 until 2020. Also, according to the CBO, by the end of 2020, debt is expected to rise to $15 trillion by the close of 2020. This amounts to 67% of the GDP. With this significant increase in debt, along with an expected increase in interest rates, interest payments are expected to triple through 2010 and 2020. The payments are estimated to rise from $207 billion to $723 billion, which then doubles as a share of GDP, from 1.4% to 3.2% ("Budget&Econ2010/20," 2010).

Figure 1 lists the amounts of interest paid on the federal deficit from fiscal years (FY) 1990–2010. In FY 2010, the figure also shows the amounts each month from October through March. Through those months, the cost of interest had reached a staggering $201,928,781,952.77. Figure 2, along with Figure 1, depicts interest cost. It shows interest projections on federal outlays. It includes FY 2009 through 2020.

Data

Interest Expense Fiscal Year 2010	
March	$20,787,112,806.56
February	$16,893,440,780.68
January	$18,856,851,343.86
December	$104,631,821,540.22
November	$17,928,110,784.85
October	$22,831,444,696.60
Fiscal Year Total	**$201,928,781,952.77**

Available Historical Data Fiscal Year End	
2009	$383,071,060,815.42
2008	$451,154,049,950.63
2007	$429,977,998,108.20
2006	$405,872,109,315.83
2005	$352,350,252,507.90
2004	$321,566,323,971.29
2003	$318,148,529,151.51
2002	$332,536,958,599.42
2001	$359,507,635,242.41
2000	$361,997,734,302.36
1999	$353,511,471,722.87
1998	$363,823,722,920.26
1997	$355,795,834,214.66
1996	$343,955,076,695.15
1995	$332,413,555,030.62
1994	$296,277,764,246.26
1993	$292,502,219,484.25
1992	$292,361,073,070.74
1991	$286,021,921,181.04
1990	$264,852,544,615.90

Figure 1. Interest Expense on Debt Outstanding (From “Treasury Direct,” 2010)

CBO's Baseline Projections of Federal Interest Outlays

(Billions of dollars)

	Actual 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total, 2011-2015	Total, 2011-2020
Interest on Treasury Debt Securities (Gross interest)[a]	383	428	451	508	573	652	730	804	873	942	1,008	1,070	2,913	7,609
Interest Received by Trust Funds														
Social Security	-118	-120	-119	-119	-122	-126	-133	-141	-151	-161	-171	-180	-619	-1,422
Other trust funds[b]	-64	-71	-64	-69	-74	-78	-81	-83	-84	-86	-89	-89	-366	-797
Subtotal	-182	-191	-183	-188	-195	-205	-214	-224	-235	-246	-260	-269	-985	-2,219
Other Interest[c]	-15	-29	-34	-39	-44	-51	-55	-60	-66	-71	-72	-77	-224	-570
Other Investment Income[d]	*	-1	*	*	-1	-1	-1	-1	-1	-1	*	*	-2	-5
Total Net Interest Outlays	187	207	233	280	333	396	459	519	572	624	676	723	1,701	4,816

[illegible]

Figure 2. CBO's Baseline Projections of Federal Interest Outlays (From Congressional Budget Office, 2010*b*)

Figure 3 depicts the federal deficit from FY 1990 through 2015. Also, note that years 2010 through 2015 are estimates. This figure shows the relationship of the federal deficit to the GDP in a percentage. It also displays the federal deficit in millions of dollars and the amount of debt held by the public.

Figure 4 portrays the nominal GDP percentage change, as well as the real GDP percentage change. This figure shows estimates, forecast, and projections from FY 2009 through 2020. It also displays other categories that significantly affect GDP, such as, but not limited to, tax bases and unemployment rates.

Table 7.1—FEDERAL DEBT AT THE END OF YEAR: 1940–2015

End of Fiscal Year	In Millions of Dollars					As Percentages of GDP				
	Gross Federal Debt	Less: Held by Federal Government Accounts	Equals: Held by the Public			Gross Federal Debt	Less: Held by Federal Government Accounts	Equals: Held by the Public		
			Total	Federal Reserve System	Other			Total	Federal Reserve System	Other
1990	3,206,290	794,733	2,411,558	234,410	2,177,147	55.9	13.9	42.1	4.1	38.0
1991	3,598,178	909,179	2,688,999	258,591	2,430,408	60.7	15.3	45.3	4.4	41.0
1992	4,001,787	1,002,050	2,999,737	296,397	2,703,341	64.1	16.1	48.1	4.7	43.3
1993	4,351,044	1,102,647	3,248,396	325,653	2,922,744	66.1	16.7	49.3	4.9	44.4
1994	4,643,307	1,210,242	3,433,065	355,150	3,077,915	66.6	17.3	49.2	5.1	44.1
1995	4,920,586	1,316,208	3,604,378	374,114	3,230,264	67.0	17.9	49.1	5.1	44.0
1996	5,181,465	1,447,392	3,734,073	390,924	3,343,149	67.1	18.8	48.4	5.1	43.3
1997	5,369,206	1,596,862	3,772,344	424,518	3,347,826	65.4	19.4	45.9	5.2	40.8
1998	5,478,189	1,757,090	3,721,099	458,182	3,262,917	63.2	20.3	43.0	5.3	37.7
1999	5,605,523	1,973,160	3,632,363	496,644	3,135,719	60.9	21.4	39.4	5.4	34.1
2000	5,628,700	2,218,896	3,409,804	511,413	2,898,391	57.3	22.6	34.7	5.2	29.5
2001	5,769,881	2,450,266	3,319,615	534,135	2,785,480	56.4	24.0	32.5	5.2	27.2
2002	6,198,401	2,657,974	3,540,427	604,191	2,936,235	58.8	25.2	33.6	5.7	27.8
2003	6,760,014	2,846,570	3,913,443	656,116	3,257,327	61.6	25.9	35.6	6.0	29.7
2004	7,354,657	3,059,113	4,295,544	700,341	3,595,203	62.9	26.2	36.8	6.0	30.8
2005	7,905,300	3,313,088	4,592,212	736,360	3,855,852	63.5	26.6	36.9	5.9	31.0
2006	8,451,350	3,622,378	4,828,972	768,924	4,060,048	63.9	27.4	36.5	5.8	30.7
2007	8,950,744	3,915,615	5,035,129	779,632	4,255,497	64.4	28.2	36.2	5.6	30.6
2008	9,986,082	4,183,032	5,803,050	491,127	5,311,923	69.2	29.0	40.2	3.4	36.8
2009	11,875,851	4,331,144	7,544,707	769,160	6,775,547	83.4	30.4	53.0	5.4	47.6
2010 estimate	13,786,615	4,488,962	9,297,653	N/A	N/A	94.3	30.7	63.6	N/A	N/A
2011 estimate	15,144,029	4,645,704	10,498,325	N/A	N/A	99.0	30.4	68.6	N/A	N/A
2012 estimate	16,335,662	4,863,550	11,472,112	N/A	N/A	100.8	30.0	70.8	N/A	N/A
2013 estimate	17,453,482	5,127,829	12,325,653	N/A	N/A	101.6	29.8	71.7	N/A	N/A
2014 estimate	18,532,303	5,392,956	13,139,347	N/A	N/A	101.9	29.6	72.2	N/A	N/A
2015 estimate	19,683,285	5,694,911	13,988,373	N/A	N/A	102.6	29.7	72.9	N/A	N/A

N/A: Not available.

Figure 3. Federal Debt at the End of Years 1940–2015 (From Office of Management and Budget 2010)

CBO's Year-by-Year Forecast and Projections for Calendar Years 2009 to 2020													
	Estimated	Forecast		Projected									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nominal GDP													
(Billions of dollars)	14,253	14,706	15,116	15,969	16,918	17,816	18,622	19,425	20,231	21,033	21,882	22,770
Nominal GDP													
(Percentage change)	-1.3	3.2	2.8	5.6	5.9	5.3	4.5	4.3	4.1	4.0	4.0	4.1
Real GDP													
(Percentage change)	-2.5	2.2	1.9	4.6	4.8	3.9	2.9	2.5	2.3	2.2	2.2	2.3
GDP Price Index													
(Percentage change)	1.2	0.9	0.9	1.0	1.1	1.3	1.6	1.7	1.8	1.8	1.8	1.8
PCE Price Index[a]													
(Percentage change)	0.2	1.9	1.1	1.1	1.1	1.3	1.6	1.7	1.8	1.8	1.8	1.8
Core PCE Price Index[b]													
(Percentage change)	1.5	1.2	1.0	1.0	1.0	1.3	1.5	1.7	1.7	1.8	1.8	1.8
Consumer Price Index[c]													
(Percentage change)	-0.2	2.4	1.3	1.2	1.1	1.3	1.7	1.9	2.0	2.0	2.0	2.0
Core Consumer Price Index[d]													
(Percentage change)	1.8	1.5	1.0	0.9	1.0	1.3	1.7	1.9	2.0	2.0	2.0	2.0
Employment Cost Index[e]													
(Percentage change)	1.5	1.6	1.4	2.1	2.5	2.9	3.0	3.0	3.0	3.0	3.0	3.0
Unemployment Rate													
(Percent)	9.3	10.1	9.5	8.0	6.3	5.3	5.1	5.0	5.0	5.0	5.0	5.0
Three-Month Treasury													

CBO's Year-by-Year Forecast and Projections for Calendar Years 2009 to 2020													
	Estimated	Forecast		Projected									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bill Rate (Percent)	0.1	0.2	0.7	1.9	3.0	3.9	4.2	4.4	4.7	4.8	4.8	4.8
Ten-Year Treasury Note Rate (Percent)	3.2	3.6	3.9	4.2	4.5	4.9	5.2	5.4	5.6	5.6	5.6	5.6
Tax Bases (Billions of dollars)												
Domestic economic profits	990	1,263	1,207	1,387	1,462	1,487	1,471	1,468	1,484	1,506	1,542	1,588
Wages and salaries	6,329	6,517	6,671	7,149	7,624	8,061	8,445	8,818	9,189	9,554	9,938	10,365
Tax Bases (Percentage of GDP)												
Domestic economic profits	6.9	8.6	8.6	8.7	8.6	8.3	7.9	7.6	7.3	7.2	7.0	7.0
Wages and salaries	44.4	44.3	44.1	44.8	45.1	45.2	45.3	45.4	45.4	45.4	45.4	45.5
Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.												
Notes: Percentage changes are measured from one year to the next.												
GDP = gross domestic product; PCE = personal consumption expenditure.												
a. The personal consumption expenditure chained price index.												
b. The personal consumption expenditure chained price index excluding prices for food and energy.												
c. The consumer price index for all urban consumers.												
d. The consumer price index for all urban consumers excluding prices for food and energy.												
e. The employment cost index for wages and salaries of workers in private industry.												

Figure 4. CBO's Year-by-Year Forecast and Projections for Calendar Years 2009 to 2020 (From Congressional Budget Office, n.d.)

Figure 5 displays the difference in average interest rates using the months of April 2009 and April 2010. It also displays the interest bearing debt on marketable and non-marketable securities. The bottom of the chart shows the total interest bearing debt, as well as a higher rate in April 2009 than in April 2010.

April

Title	Average Interest Rates	
	April 30, 2010	April 30, 2009
Interest-bearing Debt:		
Marketable:		
Treasury Bills	0.234	0.573
Treasury Notes	2.762	3.400
Treasury Bonds	6.270	6.895
Treasury Inflation-Protected Securities (TIPS)	2.235	2.326
Federal Financing Bank	4.628	4.652
Total Marketable	**2.498***	**2.808**
Non-marketable:		
Domestic Series	7.944	7.943
Foreign Series	3.864	2.409
R.E.A. Series	5.000	5.000
State and Local Government Series	3.618	4.062
United States Savings Securities	2.235	2.888
United States Savings Inflation Securities	4.836	6.745
Government Account Series	4.460	4.681
Hope Bonds	0.162	0.171
Total Non-marketable	**4.365***	**4.597**
Total Interest-bearing Debt	**3.217***	**3.587**

Average Interest Rates are calculated on the total unmatured interest-bearing debt.

The Average Interest Rates for Total Marketable, Total Nonmarketable, and Total Interest

Figure 5. Interest Bearing Debt (From "Interest Bearing Debt," 2010)

Figure 6 displays FY 1990 through 2015. It is a summary of receipts, outlays, and surpluses of deficits. Also, it depicts the total amounts, on-budget, and off-budget of the aforementioned. Note that the years 2010 through 2015 are estimates.

Table 1.1—**SUMMARY OF RECEIPTS, OUTLAYS, AND SURPLUSES OR DEFICITS (−): 1789–2015**

(in millions of dollars)

Year	Total			On-Budget			Off-Budget		
	Receipts	Outlays	Surplus or Deficit(−)	Receipts	Outlays	Surplus or Deficit(−)	Receipts	Outlays	Surplus or Deficit(−)
1990	1,031,972	1,253,007	-221,036	750,316	1,027,942	-277,626	281,656	225,065	56,590
1991	1,054,996	1,324,234	-269,238	761,111	1,082,547	-321,435	293,885	241,687	52,198
1992	1,091,223	1,381,543	-290,321	788,797	1,129,205	-340,408	302,426	252,339	50,087
1993	1,154,341	1,409,392	-255,051	842,406	1,142,805	-300,398	311,934	266,587	45,347
1994	1,258,579	1,461,766	-203,186	923,554	1,182,394	-258,840	335,026	279,372	55,654
1995	1,351,801	1,515,753	-163,952	1,000,722	1,227,089	-226,367	351,079	288,664	62,415
1996	1,453,055	1,560,486	-107,431	1,085,563	1,259,582	-174,019	367,492	300,904	66,588
1997	1,579,240	1,601,124	-21,884	1,187,250	1,290,498	-103,248	391,990	310,626	81,364
1998	1,721,733	1,652,463	69,270	1,305,934	1,335,859	-29,925	415,799	316,604	99,195
1999	1,827,459	1,701,849	125,610	1,382,991	1,381,071	1,920	444,468	320,778	123,690
2000	2,025,198	1,788,957	236,241	1,544,614	1,458,192	86,422	480,584	330,765	149,819
2001	1,991,142	1,862,906	128,236	1,483,623	1,516,068	-32,445	507,519	346,838	160,681
2002	1,853,149	2,010,907	-157,758	1,337,828	1,655,245	-317,417	515,321	355,662	159,659
2003	1,782,321	2,159,906	-377,585	1,258,479	1,796,897	-538,418	523,842	363,009	160,833
2004	1,880,126	2,292,853	-412,727	1,345,381	1,913,342	-567,961	534,745	379,511	155,234
2005	2,153,625	2,471,971	-318,346	1,576,149	2,069,760	-493,611	577,476	402,211	175,265
2006	2,406,876	2,655,057	-248,181	1,798,494	2,232,988	-434,494	608,382	422,069	186,313
2007	2,568,001	2,728,702	-160,701	1,932,912	2,275,065	-342,153	635,089	453,637	181,452
2008	2,523,999	2,982,554	-458,555	1,865,953	2,507,803	-641,850	658,046	474,751	183,295
2009	2,104,995	3,517,681	-1,412,686	1,450,986	3,000,665	-1,549,679	654,009	517,016	136,993
2010 estimate	2,165,119	3,720,701	-1,555,582	1,529,936	3,163,742	-1,633,806	635,183	556,959	78,224
2011 estimate	2,567,181	3,833,861	-1,266,680	1,893,113	3,255,668	-1,362,555	674,068	578,193	95,875
2012 estimate	2,926,400	3,754,852	-828,452	2,205,925	3,154,610	-948,685	720,475	600,242	120,233
2013 estimate	3,188,115	3,915,443	-727,328	2,422,390	3,285,517	-863,127	765,725	629,926	135,799
2014 estimate	3,455,451	4,161,230	-705,779	2,646,408	3,498,677	-852,269	809,043	662,553	146,490
2015 estimate	3,633,679	4,385,531	-751,852	2,777,742	3,687,663	-909,921	855,937	697,868	158,069

* $500 thousand or less.

Note: Budget figures prior to 1933 are based on the "Administrative Budget" concepts rather than the "Unified Budget" concepts.

Figure 6. Summary of Receipts

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III. ANALYSIS

An upward trend occurred in the year 2002 with respect to debt to GDP. The decline in the stock market, the recession, and the initially slow recovery all reduced tax receipts. The tax cuts of 2001 and 2003 had defining and longer lasting effects ("Federal Borrowing and Debt," n.d.*a*.). In 2009, the Congressional Budgeting Office (CBO) predicted a spike in publicly held debt. The increase would lead to the highest debt-to-GDP ratio since WWII. In 1946, which was shortly after WWII, debt was astronomically high weighing in at 108.6% of GDP. Although the deficit is not as high as in 1946, it is imperative to monitor trends and/or events that continue to increase the debt-to-GDP ratio. In 2008, the deficit was predicted to change from 40.8% of GDP to 50.5% in 2009. This would result in a 9.7% increase. These figures exclude actions taken to stimulate the economy and support of the Iraq and Afghanistan conflict ("Federal Borrowing and Debt," n.d.*a*.).

Debt as a percentage of GDP is estimated to increase in 2009–2011, reaching 70.1% of GDP. In 2008, the government borrowed 768 billion, increasing the debt held by the public from 5,035 billion at the end of 2007 to 5,803 billion at the end of 2008. The debt held by government accounts increased 267 billion, and gross federal debt increased by 1,035 billion to 9,986 billion. As a result of the government's unrelenting efforts to restore the health of the nation's financial markets and economy, including the Trouble Asset Relief Program (TARP), purchases of mortgage-backed securities issued or guaranteed by the government-sponsored enterprises (GSE) Fannie Mae and Freddie Mac, and other financial stabilization activities, other factors are estimated to increase borrowing by 887 billion in 2009. In 2010–2019, these other factors are expected to increase borrowing by annual amounts ranging from seven billion to 92 billion ("Federal Borrowing and Debt," n.d.*a*.).

The increasing federal deficit has an after effect of hindering economic growth in the form of a lack of capital available for privatization. When U.S. securities are forced to provide higher yields to entice more bondholders, those incentives take away from the

capital needed to establish future organizations, which, with adequate capital, may have the potential to grow into large corporations that, in turn, would have a need for employees. The hiring of employees would reduce the unemployment rate. The corporation would provide additional tax receipts and labor output leading to a larger GDP, which can aid in improving the overall financial health of the United States. An enhanced GDP also helps the United States deal with growing social programs, such as Medicare, Medicaid, and Social Security. These programs are vital components of the long-range federal deficit. In 2009, these three major entitlement programs—Medicare, Medicaid, and Social Security—accounted for 41% of non-interest federal spending, up from 30% in 1980 ("Long Term Budget Outlook," n.d.*b*.).

Figure 7 provides a visual depiction of debt held by the public in past years and estimates of future years. The chart shows the years of 1940 through 2020. Also, it is in form of debt held by the public as a percentage share of the GDP with a baseline and an alternate depiction. The latter represents the scenario of extending the tax cuts for years 2001 and 2003.

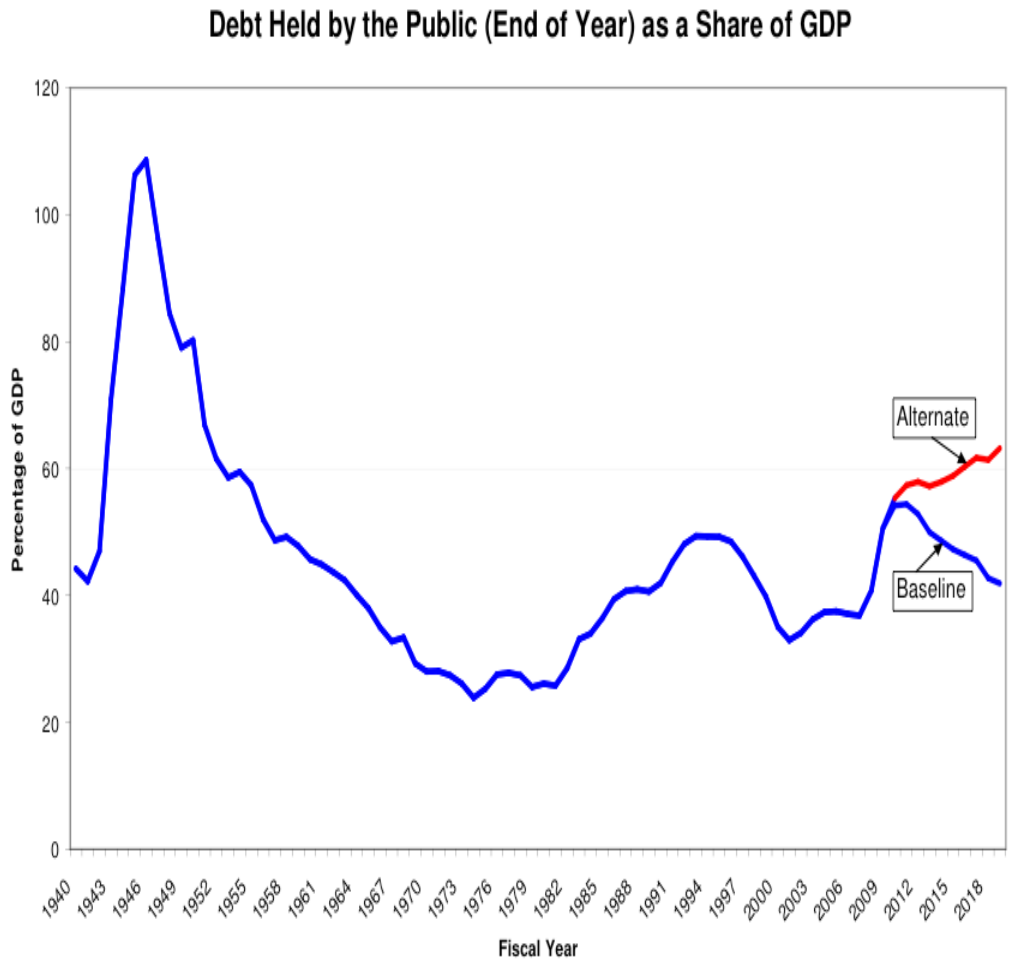

Figure 7. Federal Debt and Interest Costs (From Committee for Responsible Federal Budget, 2010)

The cost of interest on the federal deficit is a subject not to be ignored. Interest rates have a negative effect on the federal deficit. As interest rates increase, so does the federal deficit. Financial institutions have an adequate influence over interest rates. For example, the central bank dominates short-term interest rates through its interest rate targeting policies; thereby, possibly obscuring the near-term effect of deficits. Conversely, long-term rates are much less subject to the direct influence of the central bank. The long-term rates are dominated by the outlook for inflation and the expected rate of return on capital expenditures (Khurshid, 2009). A central bank is a banking institution granted the exclusive privilege to lend a government its currency. Like a

normal commercial bank, a central bank charges interest on the loans made to borrowers; primarily, the government of whichever country for which the bank exists, and to other commercial banks; typically, as a "lender of last resort." However, a central bank is distinguished from a normal commercial bank as it has a monopoly on creating the currency of that nation, which is loaned to the government in the form of legal tender. Thus, it is a bank that can lend money to other banks in times of need (Sullivan & Sheffrin, 2003).

Reducing the federal debt is a sought-after goal within the federal government as it frees up future tax revenues that could have otherwise been devoted to interest payments to bond holders. Interest payments are reduced for two reasons. First, reducing the debt means fewer bond payments to make. Second, if reducing the debt makes interest rates fall, interest payments on the remaining debt eventually become lower. For example, the Treasury Department estimates that a permanent fall in the interest of 1\100 of a percent can save the federal government $300 million annually in interest payments (Labonte, 2000).

American borrowers have two sources of funds to acquire loans: the current savings of American households and businesses, and the savings of foreigners willing to invest in American loans. When the government has surpluses and uses them to reduce the publicly held debt, it adds a third source to the pool of savings; thus, increasing the supply of funds available for "loans" and lowering real interest rates. Consequently, budget surpluses are expected to lower real interest rates. As real interest rates fall, private investments that have been unprofitable at a higher rate of interest now become profitable, and more private investments are made. Economist refer to this process as budget surpluses "crowding in" private investment. Since private investment adds to this nation's productive potential, it can possibly result in a potential increase in national GDP (Labonte, 2000).

In the haze of the financial crisis, the federal government has been quite providential. U.S. bondholders have not demanded higher interest rates as they seek safe havens for their money. As a result, interest rates demanded by bondholders were the

lowest in history. In fact, the United States sold $30 billion of four-week bills at a 0% interest rate on December 10, 2008 (MacGuineas, 2009). The CBO expects that interest costs for the budget year (FY 2010) to be the lowest as a share of the debt outstanding than in any year since 1962. Net interest costs are expected to be 2.4%of debt outstanding for FY 2010, which is 30 basis points below the expected 2009 level of 2.7%. The implied interest rate rises for years after 2010—reaching 5% in 2018—are consistent with the rise in interest rates found in CBO's economic projections for those years (MacGuineas, 2009).

Other factors may promote an increasing interest rate. First, only so much capital exists to meet the needs of those that request it. As the economy improves, the government may have to compete for a much smaller source of capital. This may occur through people acquiring less debt from the government and investing more in the private sector, which, in turn, may lead to higher interest rates on publicly held debt to entice future bondholders. Second, it is necessary to evaluate foreign investments in U.S. federal debt. Decreasing exports from other countries may reflect a larger savings trend, lack of resources to spare, and/or a need to stimulate their own domestic economies. Therefore, reducing the purchase of U.S. government securities while reducing foreign investment in the U.S. government. Hence, downsizing foreign capital plays a critical role in the U.S. economy (MacGuineas, 2009).

According to the CBO, net interest will be the greatest increasing expense of the budget. CBO projects that between 2010 and 2020, interest cost will increase from $207 billion to 723 billion, which will almost double its current share of spending (Congressional Budget Office, 2010a, 2010b).

Figure 8 illustrates net interest cost as a percentage of debt held by the public. It covers years 1962 through 2020.

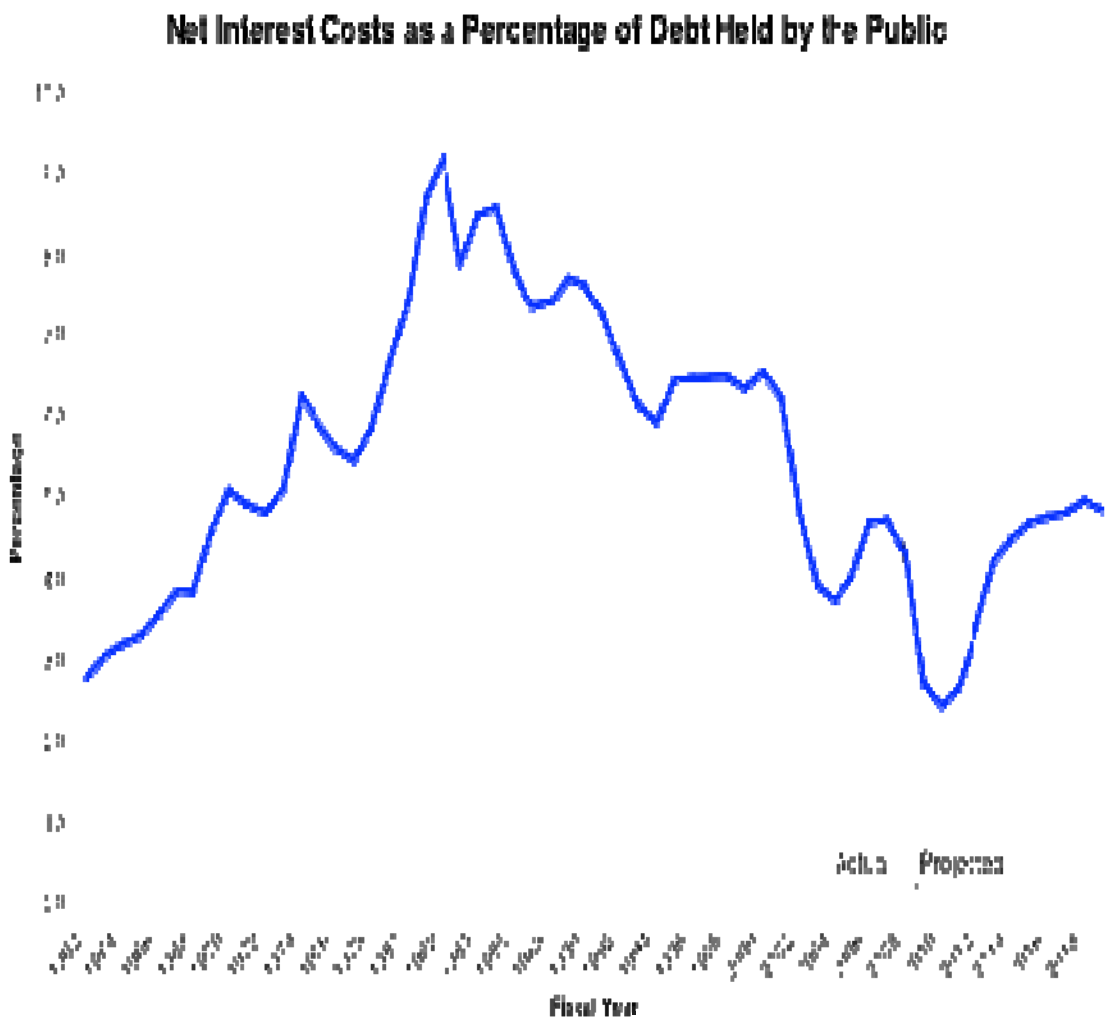

Figure 8. Federal Debt and Interest Costs (From Committee for Responsible Federal Budget, 2009)

In reference to the CBO January 2010 baseline, a negative gap appears to occur between spending and revenue from 2011 to 2020. The CBO predicts a total of $36,836 billion in revenues and $42,883 billion in spending, which creates a negative difference of $6,047 billion. Also, through 2011 and 2020, publicly held debt increases each year. With an increase in publicly held debt, interest cost expands and less capital is diverted towards the actual principal. Upon evaluating the budget as a percentage of GDP, note again that spending trumps revenue. Between 2011 and 2020, revenue is 19.6% of GDP and spending is 22.8% of GDP. Once again, this leaves a negative difference. The

amount computes to a negative 3.2% deficit ("Congressional Budget Office Baseline Budget Projection," 2010*b*). Figure 9 illustrates the CBO's baseline projections. It shows the years of 2009 through 2020.

	Actual 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total, 2011-2015	Total, 2011-2020
							In Billions of Dollars							
Revenues														
Individual income taxes	915	946	1,258	1,434	1,595	1,729	1,854	1,969	2,091	2,199	2,316	2,448	7,870	18,894
Corporate income taxes	138	147	266	318	350	394	365	387	393	401	403	416	1,693	3,693
Social insurance taxes	891	878	934	993	1,056	1,115	1,165	1,212	1,260	1,310	1,361	1,416	5,263	11,822
Other revenues	160	204	211	219	218	227	241	246	252	261	271	282	1,115	2,427
Total Revenues	**2,105**	**2,175**	**2,670**	**2,964**	**3,218**	**3,465**	**3,625**	**3,814**	**3,996**	**4,170**	**4,352**	**4,563**	**15,941**	**36,836**
On-budget	1,451	1,533	1,997	2,253	2,463	2,668	2,789	2,943	3,088	3,225	3,369	3,539	12,170	28,335
Off-budget	654	642	673	711	754	797	836	871	908	945	982	1,024	3,771	8,501
Outlays														
Mandatory spending	2,094	1,946	2,045	1,989	2,077	2,188	2,272	2,414	2,524	2,638	2,838	3,008	10,572	23,994
Discretionary spending	1,237	1,371	1,371	1,344	1,346	1,357	1,373	1,402	1,426	1,450	1,486	1,518	6,792	14,074
Net interest	187	207	233	280	333	396	459	519	572	624	676	723	1,701	4,816
Total Outlays	**3,518**	**3,524**	**3,650**	**3,613**	**3,756**	**3,940**	**4,105**	**4,335**	**4,521**	**4,712**	**5,000**	**5,250**	**19,065**	**42,883**
On-budget	3,001	2,968	3,073	3,010	3,122	3,276	3,409	3,602	3,747	3,894	4,134	4,332	15,889	35,598
Off-budget	517	556	577	603	634	665	697	733	774	818	866	917	3,176	7,285
Deficit (-) or Surplus	**-1,414**	**-1,349**	**-980**	**-650**	**-539**	**-475**	**-480**	**-521**	**-525**	**-542**	**-649**	**-687**	**-3,124**	**-6,047**
On-budget	-1,551	-1,434	-1,076	-757	-659	-608	-619	-659	-659	-669	-765	-793	-3,719	-7,263
Off-budget	137	86	96	108	120	133	139	138	134	127	116	107	595	1,216
Debt Held by the Public	7,544	8,797	9,785	10,479	11,056	11,556	12,055	12,595	13,133	13,678	14,329	15,027	n.a.	n.a.
Memorandum:														
Gross Domestic Product	14,236	14,595	14,992	15,730	16,676	17,606	18,421	19,223	20,036	20,823	21,667	22,544	83,425	187,719
							As a Percentage of Gross Domestic Product							
Revenues														
Individual income taxes	6.4	6.5	8.4	9.1	9.6	9.8	10.1	10.2	10.4	10.6	10.7	10.9	9.4	10.1
Corporate income taxes	1.0	1.0	1.8	2.0	2.1	2.2	2.0	2.0	2.0	1.9	1.9	1.8	2.0	2.0
Social insurance taxes	6.3	6.0	6.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Other revenues	1.1	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Total Revenues	**14.8**	**14.9**	**17.8**	**18.8**	**19.3**	**19.7**	**19.7**	**19.8**	**19.9**	**20.0**	**20.1**	**20.2**	**19.1**	**19.6**
On-budget	10.2	10.5	13.3	14.3	14.8	15.2	15.1	15.3	15.4	15.5	15.6	15.7	14.6	15.1
Off-budget	4.6	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Outlays														
Mandatory spending	14.7	13.3	13.6	12.6	12.5	12.4	12.3	12.6	12.6	12.7	13.1	13.3	12.7	12.8
Discretionary spending	8.7	9.4	9.1	8.5	8.1	7.7	7.5	7.3	7.1	7.0	6.9	6.7	8.1	7.5
Net interest	1.3	1.4	1.6	1.8	2.0	2.2	2.5	2.7	2.9	3.0	3.1	3.2	2.0	2.6
Total Outlays	**24.7**	**24.1**	**24.3**	**23.0**	**22.5**	**22.4**	**22.3**	**22.6**	**22.6**	**22.6**	**23.1**	**23.3**	**22.9**	**22.8**
On-budget	21.1	20.3	20.5	19.1	18.7	18.6	18.5	18.7	18.7	18.7	19.1	19.2	19.0	19.0
Off-budget	3.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.9	4.0	4.1	3.8	3.9
Deficit (-) or Surplus	**-9.9**	**-9.2**	**-6.5**	**-4.1**	**-3.2**	**-2.7**	**-2.6**	**-2.7**	**-2.6**	**-2.6**	**-3.0**	**-3.0**	**-3.7**	**-3.2**
On-budget	-10.9	-9.8	-7.2	-4.8	-3.9	-3.5	-3.4	-3.4	-3.3	-3.2	-3.5	-3.5	-4.5	-3.9
Off-budget	1.0	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.7	0.6
Debt Held by the Public	53.0	60.3	65.3	66.6	66.3	65.6	65.4	65.5	65.5	65.7	66.1	66.7	n.a.	n.a.

Figure 9. Congressional Budget Office Baseline Budget Projection (From Congressional Budget Office, 2010*b*)

The CBO's baseline assumes that approximately 150 tax provisions under current law conclude on schedule. These include individual rate cuts and new tax credits enacted in 2001, 2003, and 2009, reduction in estate taxes, lower capital gains tax rate, and various corporate tax rate provisions. Under the previous circumstances, revenue increases by 2.7% of GDP between 2010 and 2012. If tax provisions are extended, revenues can be 2% of GDP lower and deficits 2% of GDP higher than baseline projections ("Budget and Economic Outlook," 2010*a*). A decrease in revenue has a constraining effect on federal spending. As depicted in Figure 7, little is spent on other programs while a significant amount of the budget goes towards Medicare and Medicaid, Defense, and Social Security. These programs are mandatory and must be funded according to law. Retrospectively, less funding is available for other programs that may have a substantial impact on the infrastructure of the United States (i.e., education).

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IV. CONCLUSIONS

In conclusion, rectification of the federal deficit is on the forefront of America's political agendas. To answer the research questions posed in Chapter I, the implications of the debt are many and significant. It is in the best interest of policy makers to grab hold of the federal deficit before it sends the American way spiraling out of control. Looking ahead to future years, the sustainability of current spending practices will spread the nation's resources very thin. The federal government is currently supporting fronts of conflict in Iraq and Afghanistan. Also, with the retirement of the baby boomer generation, coupled with social programs, little capital is left to further catapult the United States into leading positions of innovation. The lack of capital devoted to certain education programs may hinder the development of engineers, enhanced infrastructure, and many other contribution that are made daily to enhance quality of life.

According to the Office of Management and Budget, the three major entitlement programs—Medicare, Medicaid, and Social Security—accounted for 41% of 2009 non-interest federal spending, up from 30% in 1980. The social security actuaries project that the ratio of workers to social security beneficiaries will fall from around 3.3 currently to a little over two by the time most of the baby boomers have retired ("Long Term Budget Outlook," n.d.*b*.). The smaller ratio will have a tremendous impact on the nation's GDP and the allocation of resources.

How will the nation pay for its social programs? One obvious solution is to raise taxes. The U.S. government amongst the other super powers currently ranks low in the taxation of its citizens. Therefore, would it sound outrageous for the U.S. to do so? How about a reduction in defense spending? Using the U.S. Navy as an example, currently, the U.S. has the largest. If the U.S. Navy were reduced this may jeopardize the mission of policing shipping sea-lanes. Freedom of the sea is a critical aspect of international commerce. If the U.S. decides to relinquish the role of policing the seas, will another super power takeover?

The social programs will become a significant proportion of future federal outlays. According to OMB, outlays for social security benefits will begin exceeding its dedicated revenue stream over the next quarter century, which puts pressure on the overall budget. Currently, it is not at all possible to avoid this without enacting new legislation. As statistics show, the majority of the voting population will need or desire those social programs in the near future. Therefore, it is highly unlikely that an amendment as such can make it through the legislative process.

Overall, no one answer exists to rectify the current deficit or that of future projections completely. The approach to reducing the federal deficit encompasses many different remedies, which may include but are not limited to, a reduction in federal spending and a possible increase in taxes. Assuming that GDP growth and inflation hold constant at 2 percent through 2015, approximately $475 billion in reduced spending is needed to lower the deficit by 3%. It is also necessary to anticipate a significant tax increase as well. In addition, the American people must take ownership of the deficit as well, which includes living within one's means by saving more and spending less. Ultimately, beneath it all, U.S. citizens are responsible for the prosperities of this great nation. Now is the time to find alternative means to relieve the pressure of the federal deficit.

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